# Damping matrix correction using experimental modal damping coefficients

© S.N. Dmitriev[1], R.K. Hamidullin[2]

[1] Bauman Moscow State Technical University, Moscow, 105005, Russia
[2] JSC "Military and Industrial Corporation "NPO Mashinostroyeniya",
Reutov-town, Moscow Region, 143966, Russia

*The article presents formulas for damping matrix correction of finite-element model by using damping coefficients determined experimentally. The purpose of the work is to clarify the finite element model of the object by test results. In the adjusted matrix some coefficients are derived from experimental data, the others are considered to be proportional to the corresponding coefficients of the stiffness matrix. The proposed method was confirmed by conducting modal tests of steel beam with subsequent damping matrix correction of finite element model.*

*Keywords: dynamics, finite-element, damping, modal analysis.*

**Dmitriev S.N.** (b. 1950) graduated from Bauman Moscow Higher Technical School in 1973, Ph. D., Assoc. Professor of Aerospace Systems Department in Bauman Moscow State Technical University, author of more than 70 publications in the field of structural dynamics flying vehicles. e-mail: dim.sm2@yandex.ru

**Hamidullin R.K.** (b. 1989) graduated from Bauman Moscow State Technical University in 2012, engineer of JSC "MIC "NPO Mashinostroyeniya" Open Joint Stock Company, author of 2 publications in the field of vibration engineering. e-mail: brus555555@yandex.ru